

THE GENUS *NEOLAXTA* MACKERRAS (DICTYOPTERA : BLATTARIA : BLABERIDAE)

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ABSTRACT

Three species of the Australian genus *Neolaxta* are described, two of which, namely *mackerrasae* and *triangulifera*, are new. The generic description is modified, and a key is given to distinguish both sexes of the species. *Neolaxta* is very close to *Laxta* and can only be separated from it by spines on the anteroventral margin of the front, or all femurs; this character may be poorly developed or absent in the female.

INTRODUCTION

The Australian cockroach genus *Neolaxta* was based on a single species. In this paper I describe 2 new species and modify Mackerras's diagnosis of the genus.

The following Museums and their curators lent me specimens: ANIC — Australian National Insect Collection, CSIRO, Canberra, A.C.T., Australia; Dr D.C.F. Rentz and Mr John Balderson; MCZH — Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A.; UQLA — Department of Entomology, University of Queensland, St. Lucia, Queensland, Australia; Miss M. Schneider, through Dr G.B. Monteith; QM — Queensland Museum, Brisbane, Australia; Dr G.B. Monteith.

Genus *Neolaxta* Mackerras

Neolaxta Mackerras, 1968, p. 143; type species by monotypy, *Neolaxta monteithi* Mackerras, 1968, pp. 143–6.

DIAGNOSIS (from Mackerras)

Sexes dissimilar, males with long wings, females apterous. Head concealed beneath pronotum; face tuberculate. Anterior and lateral margins of pronotum angularly raised; pronotum of males and all terga of nymphs and females tuberculate, giving the nymphs and females a hard knobbly feeling. Legs short and slender; anteroventral margins of fore femora with several large spines proximally, followed by a row of fine spinules distally, other femoral margins unarmed; tarsi short and bare, pulvilli large, arolia rather small, claws symmetrical. Terga and sterna of male fairly

smooth; T10 short, rounded; cerci blunt, short, but projecting well beyond T10. Terga of females and nymphs bearing 2–3 rows of large pale tubercles and numerous smaller dark ones; T10 of similar shape to that of male, but cerci very short, stout, not projecting as far as T10. S9 of male asymmetrical, with very short slender styles. Sterna of female smooth medially, minutely tuberculate laterally, S7 large, smoothly rounded, bare in centre and tuberculate laterally. The genus is distinguished from *Laxta* by the angularly up-turned edges of the pronotum, the regularly arranged very large pale tubercles on the dorsum, the possession of large spines on the anteroventral margin of the fore femur and densely tuberculate face, and the irregular development of the branches of CuA in the male.

The two new species of *Neolaxta* do not have many of the above characters which are best used for specific determination of *monteithi*. Males of the new taxa do not have a tuberculate face, and the anterior and lateral edges of their pronota are not angularly turned upwards (in some species of *Laxta* the head, at least in part, may be tuberculate, and the large tubercles on the dorsum may be regularly arranged). The antero- and posteroventral margins of the mid and hind femora may have a few small spines, similar to those on the front femur. The new species of *Neolaxta* are similar to species of *Laxta*, except for the presence of large spines on the ventral margin of the front femur (Fig. 3D), or all femora, and this is the only character to separate these genera. However, the femoral spines may be very small and reduced in numbers, or lacking in some

females and nymphs, and these individuals can be easily mistaken for species of *Laxta*. The genitalia (male and female) are similar in both genera.

The distance between the eyes may be greater or less than the length of the first antennal segment; this can be shown by calculating an eye antennal index (EAI) which is the interocular distance (measured near the top of the head, where the eyes are closest together) divided by the length of the first antennal segment.

Males of *Neolaxta* are very rarely seen free-living in the field and most are collected at light, occasionally in considerable numbers (Monteith, personal communication).

KEY TO ADULTS OF *NEOLAXTA*

1. Males (winged) 2
Females (apterous)..... 4
2. Pronotum with anterior and lateral margins strongly incrassated and raised (Fig. 2A). Anteroventral margins of mid and hind femora unarmed *monteithi*
Pronotum with anterior and lateral margins not thickened or raised (Figs. 3A, 4A). Anteroventral margins of mid and hind femora with 1-6 small spines (similar to those on the front femur)..... 3
3. Hind margin of supraanal plate broadly rounded (Fig. 1E). Anteroventral margin of front femur usually with 12-26 (rarely 4-8) small spines, those with large numbers occupying practically the full length of the margin (Fig. 3D). Pronotal punctations not half-moon-shaped *mackerrasae*
Hind margin of supraanal plate with a median triangular projection (Fig. 1H). Anteroventral margin of front femur with 2-4 widely spaced spines. Pronotal punctations partly pigmented, half-moon-shaped (Fig. 4A) *triangulifera*
4. Pronotum with anterior and lateral margins strongly incrassated and raised (Fig. 2C). Head densely tuberculate (Fig. 2D)..... *monteithi*
Pronotum with anterior and lateral margins not thickened or raised (Figs. 3I, 4C). Head not tuberculate (Fig. 4D)..... 5
5. Hind margin of supraanal plate trilobate (Fig. 4C). Abdominal tergites not granulate, tubercles few in number and widely spaced along the hind margins of the segments (Fig. 4C) *triangulifera*

Hind margin of supraanal plate weakly convex (Fig. 3I). Abdominal tergites granulate, and with tubercles arranged in 2 or 3 rows (Fig. 3I) *mackerrasae*

Neolaxta monteithi Mackerras (Figs 1A-D; 2A-E)

Neolaxta monteithi Mackerras, 1968, pp. 143-6, figs 1-4, pl. 1, figs 1-6 (male and female).

MATERIAL EXAMINED

HOLOTYPE: male, Tooloom, New South Wales, 30.xii.1966, G.B. Monteith, QM T.6621.

PARATYPES: 1♀, originally from Tooloom, New South Wales, ex C.S.I.R.O., colony no. 244, Canberra, A.C.T., in the QM. Same locality and colony data, 3♂, 1♀, 30.xii.1966, G.B. Monteith, in ANIC.

OTHER MATERIAL: QUEENSLAND, UQLA: Bald Mtn. area, 3000-4000', via Emu Vale, 1♀, 27-31.i.1972, 1♀, 26-30.i.1973, G.B. Monteith, 1♀ (genitalia on slide no. 6), 26-30.i.1973, B. Cantrell; Boldery Park, Cooyar, 12♂, 1♀, 24.x.1975, Monteith and Lambkin; Cooyar, Maidenwell Road, 2♀, 12.i.1975, G.B. and S.R. Monteith; Saddletree Ck., Bunya Mts., 1♂ (terminalia on slide no. 5), 24.x.1975, Monteith and Lambkin; Levers Plateau, via Rathdowney, 3♂, 31.x.1976, G.B. Monteith; Lawes, 1♂, 2.iii.1954, V.R. Catchpoole. ANIC: Bunya Mts., 1♂, 1♀, 17-18.ix.1966, G. Monteith and B. Cantrell; Emu Ck., under log, 1♀, 27.7.1967, S.V. Mark; Nanango, 1♀, 4.v.1964, G. Monteith. NEW SOUTH WALES, ANIC: Unumgar State Forest, via Kyogle, 1♀, 1♂ nymph, 11.iv.1966, T. Weir; C.S.I.R.O. colony 244, ex Tooloom, N.S.W., 7♀, 6♂ and 5♀ nymphs, 30.xii.1966, G.B. Monteith. QUESTIONABLE LOCALITY, ANIC: 15 miles E. of Busselton, Western Australia, 2♀, 1.xi.1967, G. McCutcheon (with following label: 'Data probably wrong; M.J. Mackerras cannot recollect specimens from this locality — J. Balderson, 21.xii.1969').

DESCRIPTION

MALE: Distance between eyes greater than the length of the first antennal segment (EAI=1.2-1.7). Head with frons, vertex, and genae rough (rugulose and tuberculate) (Fig. 2B). Pronotum subelliptical, anterior and lateral margins thickened and raised (Fig. 2A), dorsal surface rugulose, with sparse large tubercles, ventral surface rugulose with a fine ridge on either side of the hood where the edge is turned upwards. Abdominal tergites smooth, all posterolateral angles rounded. Supraanal plate convex (Fig. 1B), hind margin thickened, not reaching hind margin or subgenital plate. Subgenital plate weakly asymmetrical, right and left sides slightly concave, distal region curved upwards, styles short, slender, inserted on the lateral margins (Fig. 1C). Anteroventral margin of front femur with 1-9

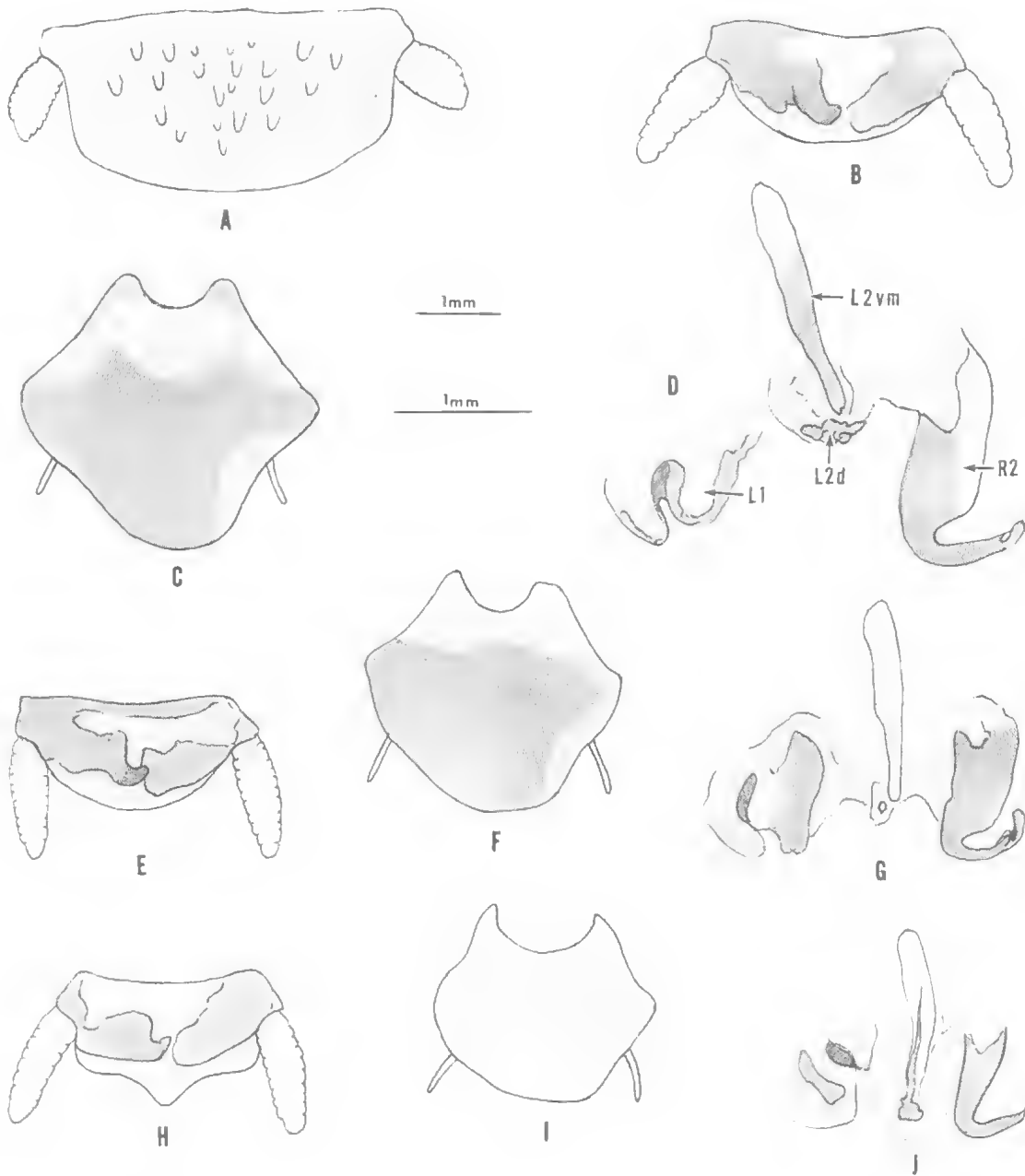


FIG. 1: *Neolaxta* spp. from Queensland. A-D. *N. monteithi* Mackerras: A. Female from Bald Mt. area, supraanal plate. B-D. Male from Saddletree Ck., Bunya Mts., supraanal plate and paraprocts, subgenital plate and styles, and genital phallomeres, respectively. E-G. *N. mackerrasae*, n. sp., male paratype from Mt. Fisher: E. Supraanal plate and paraprocts; F. Subgenital plate and styles; G. Genital phallomeres. H-J. *N. triangulifera*, n. sp., male paratype from 3.0 km west of Cape Tribulation: H. Supraanal plate and paraprocts; I. Subgenital plate and styles; J. Genital phallomeres.

Male supraanal plates are ventral views; subgenital plates, and genital phallomeres are dorsal. The phallomeres are shown in their normal position (L1 and L2 = sclerites of the left phallomere; L2vm = medial sclerite or L2 ventromedial; R2 = sclerite of the right phallomere). All drawn from slide preparations. Small scale refers to the supraanal and subgenital plates, large bar to the genital phallomeres.

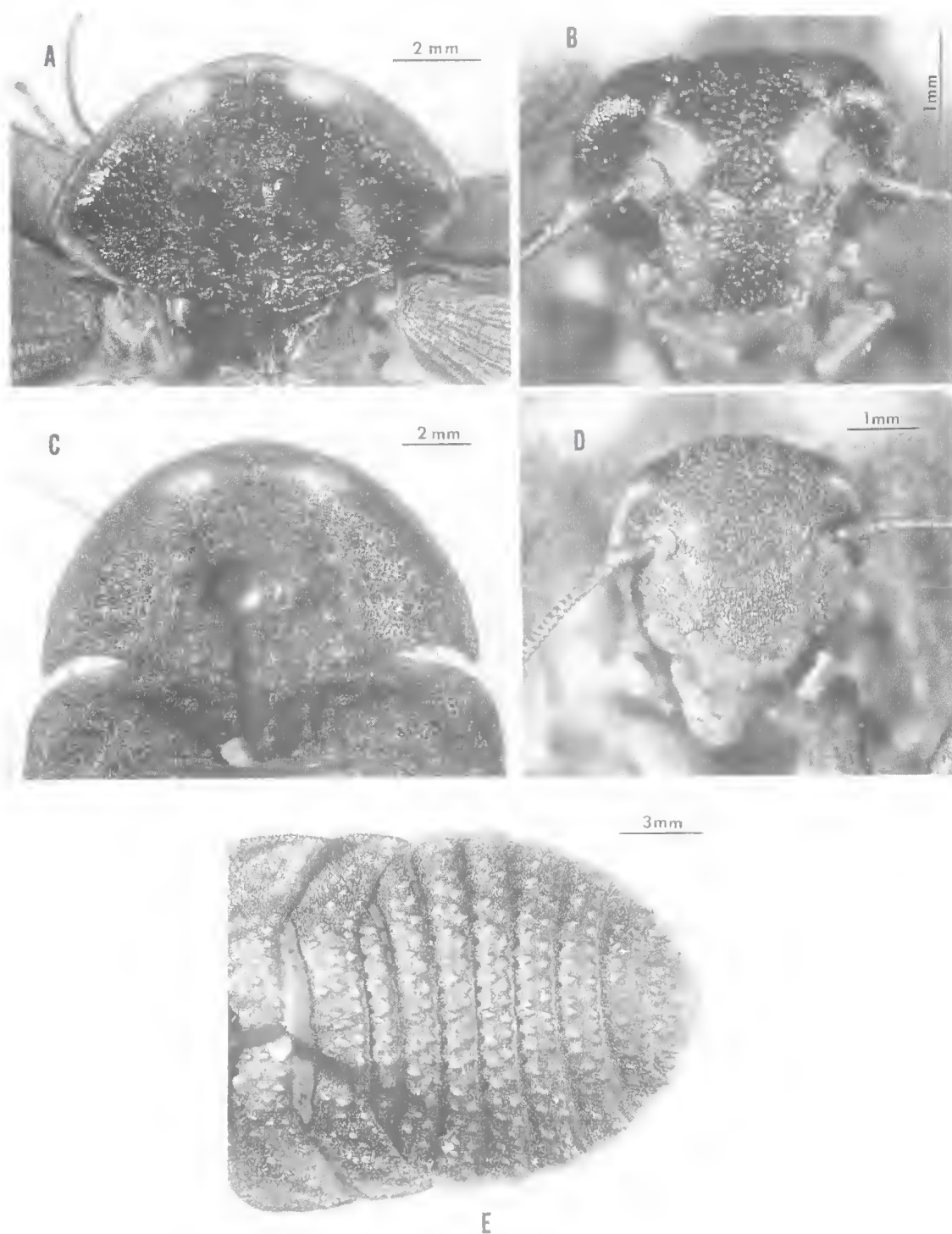


FIG. 2: *Neolaxta monteithi* Mackerras, from Tooloom, New South Wales. A, B. Male holotype, pronotum and head (frontal), respectively. C-E. Female paratype, pronotum, head (frontal), and abdomen (plus metanotum and part of mesonotum), respectively.

short robust spines on basal half, followed by some spaced spinules distad, margins of mid and hind femora unarmed. Genitalia as in Fig. 1D; L2d separated from L2vm; R2 with a subapical incision.

Colouration: Head mostly dark brown, ocelliform spots pale, margin of clypeus yellow, labrum light brown with yellow margin, genae reddish brown. Antennae with 2–3 pale segments near the apex. Pronotum with thickened raised anterior and lateral margins amber, surface tubercles reddish, medial region dark reddish brown. Lateral zones dark brown, anteriorly with a yellowish spot on either side of the midline. Tegmina and hind wings dark brown except for the clear anal area of the wings.

Measurements (mm): Body length, 18.0–24.0; pronotum length $\times$ width, 4.8–5.8 $\times$ 7.1–8.9; tegmen length, 20.0–25.7; interocular distance, 1.0–1.1; length of first antennal segment, 0.6–0.8.

FEMALE: Interocular distance about 2 or more times the length of the first antennal segment (EAI = 1.9–2.5) (Fig. 2D). Head entirely densely tuberculate, the tubercles on the vertex somewhat sparser (Fig. 2D). Entire dorsal surface of thorax and abdomen densely covered with granules, and large apically rounded tubercles, the latter on the abdomen arranged transversely in 2 rows (except for a single row on T1) (Fig. 2E). Pronotum more or less semicircular, with produced posterolateral corners, anterior and lateral margins incrassated and upturned (Fig. 2C), ventral surface of upturned region granulate, a slender ridge on each side of the hood as in the male. Abdominal tergites with lateral angles blunt, not produced, their sides only slightly overlapping the sternites (Fig. 2E). Supraanal plate with lateral margins concave to accommodate the short cerci which do not reach the convex hind margin of the plate (Figs 1A, 2E). Abdominal sternites with lateral regions pitted and granulate. Anteroventral margin of front femur with 4–10 spines on the basal half, these less distinct than in the male.

Colouration. Head dark brown. Labrum and lower half of clypeus yellowish. Pronotum dark reddish brown with a pale spot anteriorly on each side of the midline. Abdominal tergites similar to base colour of the pronotum. Coxae, femora, and tibiae brown, trochanters, knee spots, and tarsi yellowish.

Measurements (mm): Body length, 16.7–22.7; pronotum length $\times$ width, 5.0–6.5 $\times$ 9.0–11.6; interocular distance, 1.5–1.6; length of first antennal segment, 0.6–0.8.

REMARKS

The raised and thickened margins of the pronotum in both sexes make this species distinctive. The females may vary considerably in size; one of the smaller females (pronotum length $\times$ width, 5.5 $\times$ 9.0) was unequivocally an adult because it had an ootheca in its uterus. An ootheca removed from one of the larger females contained 24 partly developed embryos. Mackerras (1968) reported that one female produced 28 young, and they require about a year to mature.

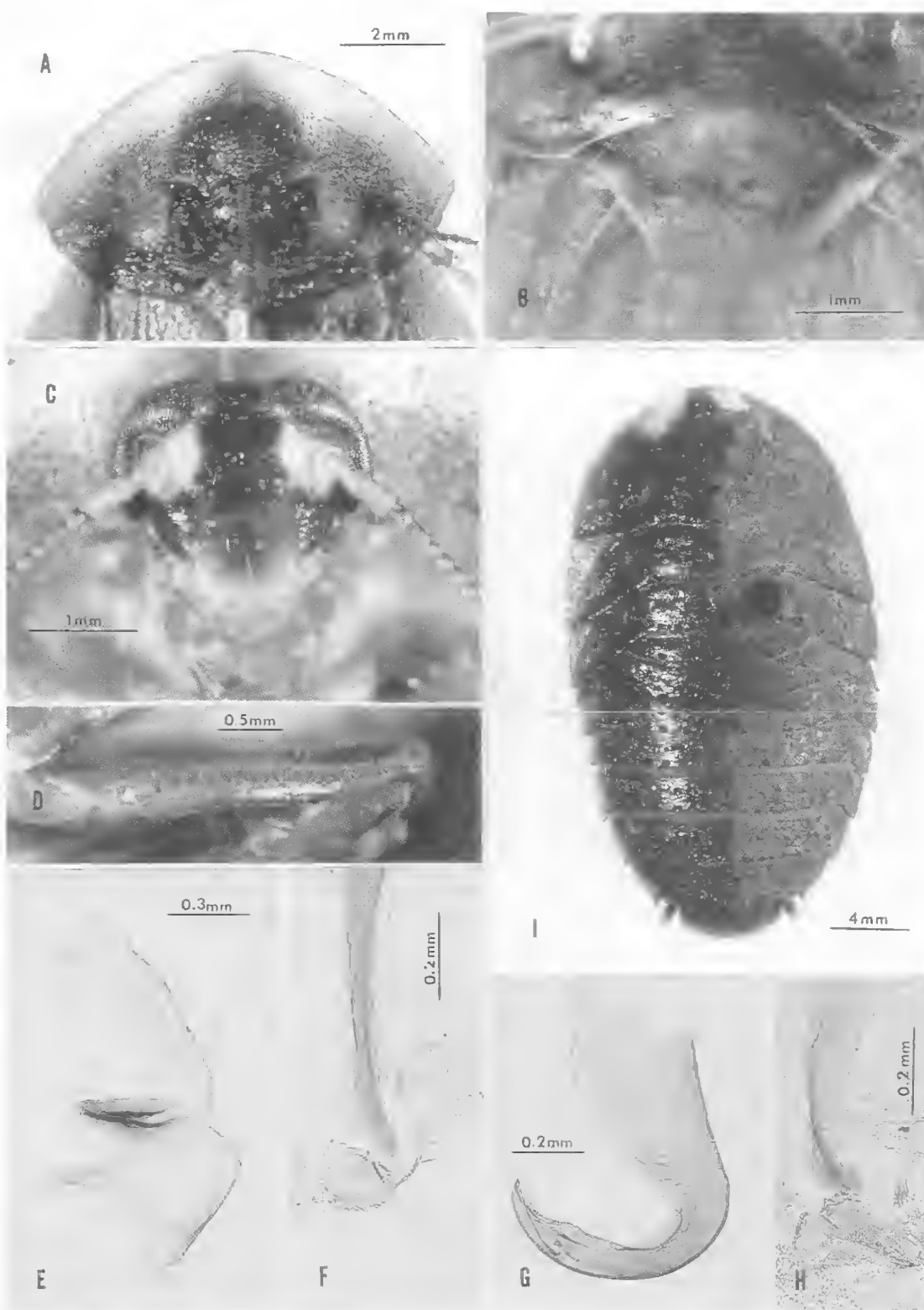
Dr G.B. Monteith (personal communication) states that *N. monteithi* 'is always found under stones and bits of wood lying on the ground; it tends to rest on the ground rather than on the object'.

Neolaxta mackerrasae n.sp. (Figs 1E–G; 3A–I)

MATERIAL EXAMINED

HOLOTYPE: male, Kirrama St. For., 32 km NW of Cardwell, Qld., 800 m, flight intercept trap, rain forest, 23.vi.–8.viii.1982, S. and J. Peck, SBP 46; in ANIC.

PARATYPES: QUEENSLAND. ANIC: Danbulla, 1♀, 30.vi.1951, F.J. Gray; near Cairns, 2♀ (dried out of spirit), Aug. 1966, H.M. Cameron; Moses Ck., 4 km N by E of Mt. Finnigan, nr. Cooktown, 15.47S 145.17E, 1♂, 14.x.1980, 1♀, 15.x.1980, 2♂ nymphs, 14–16.x.1980, T.A. Weir and R.A. Barrett; Lake Barrine, 1♂, 15.vii.1933, H.A. Gray. The following were collected in a flight intercept trap, rain forest, by S. and J. Peck: Same data as holotype, 5♂; Lacey's Creek, 10 km SE of El Arish, 40 m, 6♂, 23.vi.–5.viii.1982, SBP 47; Rosina Creek, 14 km SE of Millaa Millaa, 720 m, 5♂, 24.vi.–2.viii.1982. The following were collected by J. Balderson: Davies Ck., 20 km E by S of Mareeba, 17.02S 145.37E, 3♀, 1♀ nymph, 19.xi.1981; Palmerston Nat. Park, 24 km E by N of Ravenshoe, 17.35S 145.43E, 1♀, 14.xi.1981; Mt. Haig, 21 km NE by N of Atherton, 1♀, 17.xi.1981. The following were collected by I.F.B. Common and M.S. Upton: Mt. Edith, 18 mls NE of Atherton, 3400 ft, 2♀, 17.iii.1964; Mt. Lewis, 8 mls NW of Mt. Molloy, 3200 ft, 1♀, 18.iv.1964. MCZH: Millaa Millaa, Atherton Tab., 2500 ft, 1♀ nymph, April 1932, Darlingion, Australia Harvard Exp.; Kuranda, 1♀. QM: Rex Lookout via Mossman, rain forest, 1♀, 13.x.1980, G.B. Monteith. The following were collected by G.B. Monteith and D.K. Yeates: Majors Mt., 7 km SE of Ravenshoe, 1000–1100 m, 1♀, 4.v.1983; Mt. Demi, 7 km SW of Mossman, 900–1000 m, 1♀, 26.iv.1983. The following were collected by Earthwatch/Qld. Mus.: Mt. Bartle-Frere, Sth. Peak Summit, 1620 m, 1♀ (genitalia on slide no. 15), 1♂ nymph, 6–8.xi.1981, NW/Centre Peak ridge, 1400–1500 m, 3♀, 1♂ nymph, 7–8.xi.1981; Bellenden Ker Range, Summit TV Stn., 1560 m, 1♀, 1–7.xi.1981, ½ km S of Cable Tower No. 7, 500 m, 2♂, 4♀, 1♂ and 2♀ nymphs, 17–24.x.1981, 1♀, 25–31.x.1981, Cableway Base Stn., 100 m, 1♂, 1♀ nymph, 17–



24.x.1981, Cable Tower 3, 1054 m, 1♀ nymph, 17–24.x.1981, 1♂ and 1♀ nymph, 25–31.x.1981. The following were collected by Monteith, Yeates, and Thompson, using pyrethrum knockdown: Mt. Edith, Lamb Range, 1000 m, 1♀, 12.x.1982; Emerald Ck., Lamb Range, 950 m, 2♀, 11.x.1982; 3.0 km west of Cape Tribulation (site 6), 500 m, RF, 1♀, 20.ix.–7.x.1982, 1♂ nymph, 2.x.1982; 4.5 km west of Cape Tribulation (site 9), 760 m, 1♀, 29.ix.1982. The following were collected by G. Monteith and D. Cook; Bakers Blue Mt., 17 km west of Mt. Molloy, 1100 m, RF, 1♀ nymph, 12.ix.1981; Mt. Lewis summit via Julatten, 1200 m, 1♀, 1♂ nymph, 9.ix.1981; Mt. Finnigan via Helenvale, 760–1000 m, 7♀, 1♀ nymph, 20–27.vii.1974; Bloomfield Road via Helenvale, above ABRS site 4, rain forest, 300–460 m, 1♂, 20–27.vii.1974; Thornton Peak via Daintree, 700–1000 m, rain forest, 1♀ nymph, 22.ix.1981. The following were collected by Monteith, Yeates, and Cook, some after pyrethrum knockdown: Mt. Finnigan, 37 km S of Cooktown, 850–1100 m, 2♀, 3♂ and 1♀ nymphs, 19–22.iv.1982; Black Mts., 17 km ESE of Julatten, 800–1000 m, 1♀, 1♀ nymph, 29–30.iv.1982, 4♀, 2♀ nymphs, 14.iv.1982; Mt. Fisher, 1050–1100 m, 7 km SW of Millaa Millaa, 1♂ (terminalia on slide no. 14), 2♂, 4♀, 1♀ nymph, 27–29.iv.1982; Windsor Tbl., NNW of Mt. Carbine, 1050 m, 2♀, 1♂ and 2♀ nymphs, 15–18.iv.1982, 35 km NNW of Mt. Carbine, 1050 m, 2♀, 1♂ nymph, 15–18.iv.1982, 1♂ and 1♀ nymphs, 25–26.iv.1982. UQLA: The following were collected by B. Cantrell; Palmerston Nat. Pk., via Innisfail, 1♀, 23.iv.1968; 8 miles east of Wallaman Falls, Ingham, 1♂, 3.i.1973; Mt. Lewis via Julatten, 3500 ft., 2♀, 1♀ nymph, 8.xii.1966, 1♀, 28.xii.1966; Millaa Millaa Falls via Millaa Millaa, 1♀, 10–11.xii.1966. The following were collected by G. Monteith: Belldenden Ker, 1♀, 7.viii.1966; Cooper Creek, 18 miles N of Daintree River, 1♂, 21–22.vi.1969; Henrietta Ck., Palmerston Nat. Pk., 1♀ nymph, 29.xii.1964; Paluma Dam, 2♀, 30–31.xii.1964 (labelled *Laxta* sp., by M.J. Mackerras); Lake Eacham, 1♀ nymph, 21.xii.1964; N. Qld (exact locality illegible), 1♀ nymph, 27.xii.1964.

DESCRIPTION

MALE: Interocular distance less than the length of the first antennal segment ($EAI = 0.5–0.9$) (Fig. 3C). Head with vertex and frontoclypeal region depressed, essentially smooth, genae not tuberculate (Fig. 3C). Pronotum with anterior and lateral margins not incrassated or strongly upturned, sparsely tuberculate, surface punctate (not granulate) (Fig. 3A), ventral surface practically smooth, without ridges on either side

of the hood. Abdominal tergites and sternites smooth. Supraanal plate broadly rounded (Fig. 1E), not quite reaching the hind margin of the subgenital plate. Subgenital plate weakly asymmetrical, hind margin rounded, lateral margins not distinctly indented (Figs. 1F, 3B). Ventral margins of femora armed with spines as follows: Front femur, anterior margin, 4–26 (often occupying the entire length of the margin, Fig. 3D), posterior margin, 0; Mid femur, anterior margin, 1–4, posterior, 0 (rarely 1); Hind femur, anterior margin, usually 2, sometimes 1 or 3, rarely 4, hind margin 0, sometimes 1. Genitalia as in Figs. 1G, 3E–H; L2d separated from L2vm; R2 with a subapical incision.

Colouration: Dark brown. Head with labrum brown, lower part of clypeus whitish, rest of face brownish black. Antennae brown with 2–4 white segments near the tip. Pronotum with anterior region pale, lateral zones reddish brown, medial hood and posterior region blackish brown, rarely reddish brown. Tegmina dark brown; wings infuscated. Abdominal tergites and sternites, and legs brown, subgenital plate reddish brown with yellowish spots along the right and left margins. Cerci pale dorsally and ventrally.

Measurements (mm): Body length, 13.5–16.5; pronotum length $\times$ width, 4.1–5.1 $\times$ 6.0–8.1; tegmen length, 15.1–19.5; interocular distance, 0.3–0.7; length of first antennal segment, 0.5–0.9.

FEMALE: Interocular distance about the same or slightly less than the length of the first antennal segment ($EAI = 0.7–1.1$). Head with vertex granulate, frons and genae rugulose. Dorsal surface of thorax and abdomen with large spaced tubercles, and dense granules; tubercles on abdominal tergites essentially arranged in 2 rows (Fig. 3I); lateral borders of the abdominal tergites not widely overlapping the edges of the sternites. Supraanal plate with sides parallel, hind margin weakly convex, not indented medially (Fig. 3I). Lateral regions of abdominal sternites not distinctly granulate, practically smooth. Anteroventral margin of front femur with 1–13 very small spines, often difficult to see (sometimes lacking spines), hind margin unarmed; mid and hind femora unarmed.

FIG. 3: *Neolaxta mackerrasae*, n. sp., from Queensland. A–H. Males, variant from Mt. Spurgeon: A. Pronotum; B. Subgenital plate and styles (ventral); C. Head (frontal); D. Front femur showing the spines on the anteroventral margin; E–G. Genital phallomeres L1, L2vm and L2d, and R2, respectively; H. Genital phallomere L2vm and L2d. I. Female paratype from Mt. Fisher, 7 km west of Millaa Millaa, habitus (dirt on the left half was removed). Figs. E–H are chitin preparations.

Colouration: Reddish and reddish brown, shiny; specimens are encrusted with dirt and have to be cleaned to reveal color and texture (Fig. 3I). Head reddish brown, clypeus and labrum yellowish. Disk of pronotum dark, shading to lighter red at the lateral borders, and with a pair of yellow spots on the anterior margin (Fig. 3I). Meso- and metanotum and abdominal tergites red with indications of a pair of broad dark longitudinal stripes on the right and left halves of the segments. Undersurface of thoracic segments reddish with yellow areas near the body margin, the pronotum showing the pair of yellow anterior spots that are visible from the dorsal surface. Abdominal sternites and legs red to reddish brown. Cerci dorsally and ventrally reddish or yellowish.

Measurements (mm): Body length, 17.0–21.0; pronotum length $\times$ width, 4.7–6.4 $\times$ 8.7–11.4; interocular distance, 0.7–0.8; length of first antennal segment, 0.7–1.0.

NYMPH: Both sexes resemble the adult female except that the surface granules are less distinct, and the base color is lighter so that the longitudinal bands are more obvious. Spines on the anteroventral margin of the front femur are often lacking.

VARIANT: Male specimens from Mt. Spurgeon differ in being larger on the average, and much lighter in colour. Spikes on ventral margins of the femora as follows: Front, anterior, 8–24, posterior, 0; Mid, anterior, 0–3, posterior, 0 (rarely 1); Hind, anterior, 0–1 (rarely 2), hind, 0.

Measurements (mm): Body length, 16.5–18.2; pronotum length $\times$ width, 4.8–5.2 $\times$ 7.7–8.3; tegmen length, 18.7–22.0; interocular distance, 0.3–0.5, length of first antennal segment, 0.8–0.9; $EA1=0.3-0.6$.

Material examined: Queensland, MCZH: Mt. Spurgeon, 3500–4000 ft., 1 σ (wing on slide no. 216), 1 δ (terminalia on slide no. 89), 1 σ (terminalia on slide no. 90), 5 σ , 26.vii.1932, 1 σ , 28.vii.1932, Darlington, Australia Harvard Exped.

ETYMOLOGY

The species is named after the late Dr M. Josephine Mackerras.

REMARKS

The number of spines on the anteroventral margin of the front femur varies greatly in both sexes. Males never lack them completely and have as few as 4–8 in specimens from Mt. Fisher, and Ingham, whereas the numbers vary from 12–26 in other localities. In females the spines are reduced in size and number and are difficult to see. Females

and nymphs may lack the spines completely which explains why Mackerras labelled 2 females *Laxta* sp. These specimens and others with 'Laxta-type' femora are similar to females of *Neolaxta mackerrasae* from the same or nearby localities and I therefore consider them to be this species. However, it is possible that there is a species of *Laxta* whose females have the same color pattern as *N. mackerrasae*.

Neolaxta triangulifera n sp. (Figs 1H–J; 4A–D)

MATERIAL EXAMINED

HOLOTYPE: male, N.E. Qld., Nth. Bell Peak, 20 km S. Cairns, 900–1000 m, 15–16.ix.1981, G. Monteith and D. Cook, QM T.9561.

PARATYPES: QUEENSLAND, QM: Mt. Fisher, 7 km SW Millaa Millaa, N. Qld., QM, Berlesate No. 409, rainforest, 1100 m, sieved litter, 17.34S 145.34E, 1 σ , 27.iv.1982, Monteith, Yeates, and Cook; Bellenden Ker Range, 1/2 km S. Cable Tower No. 7, 500 m, 1 σ nymph, 25–31.x.1981, Earthwatch/Qld. Museum. The following were collected by Monteith, Yeates and Thompson: 3.0 km W of Cape Tribulation (site 6), 500 m, RF, 1 σ (terminalia on slide no. 16), in baited fly trap, 20.ix.7.x.1982; NE Qld., Bell Peak North, 10 km E Gordouvale, 850–1000 m, 1 σ (genitalia on slide no. 17), 13.x.1982, ANIC: The Crater Nat. Park, ESE of Herberton, Qld., in leaf litter, 2 σ nymphs, 25.i.1972, J.G. Brooks; 22 km S of Atherton, Longlands Gap Rd., leafmould, rain forest, 1 σ nymph, 11.xi.1969, J.G. Brooks.

DESCRIPTION

MALE: Region between the ocelli distinctly concavely excavated, eyes bulging, close together, the interocular distance less than the length of the first antennal segment ($EA1=0.4$) (Fig. 4B). Pronotum subelliptical, margins not thickened, weakly upturned, surface punctate (not granulate), with only 4 small tubercles on the elevated hood portion, the two anterior ones closer together than the posterior pair; the punctations are pits each containing a minute seta (Fig. 4A). Supraanal plate transverse, hind margin produced medially as a small triangular lobe (Fig. 1H). Subgenital plate weakly asymmetrical, right side oblique, hind margin rounded, weakly reflexed dorsad (Fig. 1I). Ventral margins of the femora armed as follows: Front femur, anterior margin, 2–4, posterior margin, 0; Mid femur, front, 4–6, hind 1–2; Hind femur, front, 3–4, posterior, 1–2. Genitalia as in Fig. 1J; L2d attached to apex of L2vm; R2 without a subapical incision.

Colouration: Light brown. Region between eyes and ocelli dark brown, rest of face yellowish. Pronotum with hood and mid posterior region

somewhat darker than the lateral and anterior parts; punctations partly pigmented, half-moon-shaped. Tegmina light brown, hyaline. Abdominal tergites, sternites, and legs, light brown. (The male paratype is lighter in color than the holotype).

Measurements (mm): Body length, 14.0–14.8; pronotum length $\times$ width, 5.0 $\times$ 7.6–8.5; tegmen length, 17.0–17.5; interocular distance, 0.2; length of first antennal segment, 0.5.

FEMALE: Very flat, covered with a thin layer of dirt which has to be removed to see color and surface texture. Head smooth, vertex flat, interocular space about the same as the length of the first antennal segment (EA1=0.9–1.0) (Fig. 4D). Pronotum (Fig. 4C) with anteromedial

margin weakly indented, tubercles very sparse, a few restricted to the hood and along the hind margin, remaining surface practically non-granulate, some small dark specks (each indicating the position of a minute seta) may be slightly raised above the surface. Abdominal tergites with small, widely spaced tubercles along their hind margins, remaining surfaces non-granulate, lateral margins widely overlapping the edges of the sternites. Hind margin of supraanal plate undulate, the right and left sides deeply concave forming 3 lobes (a medial and 2 lateral) (Fig. 4C). Front leg with minute dark granules on the anterior face of the coxa, and ventral surfaces of the trochanter and femur, some of the granules also occurring on the lower anterior

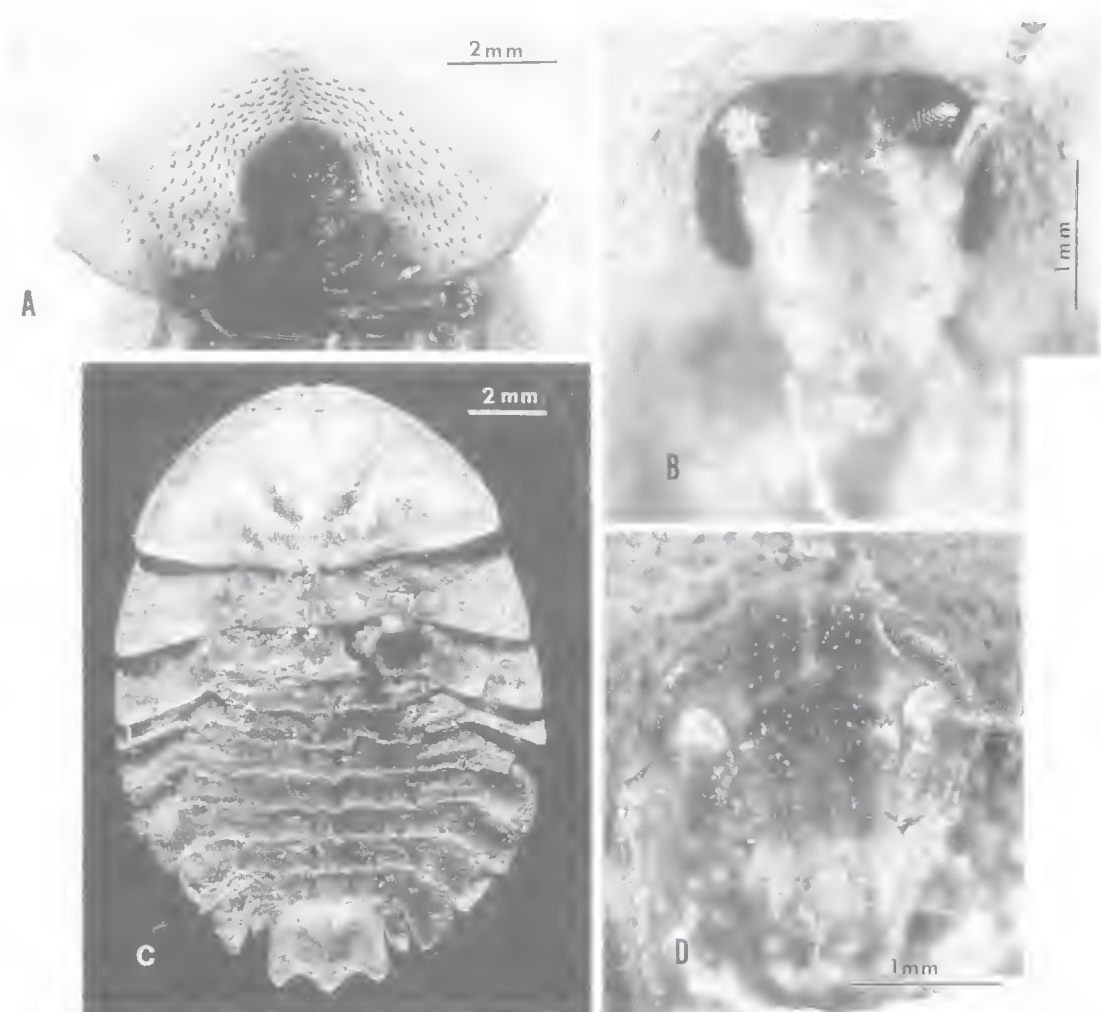


FIG. 4: *Neolaxta triangulifera*, n. sp., from Queensland. A. Male holotype from Nth. Bell Peak, pronotum. B. Male paratype from 3 km west of Cape Tribulation, head (frontal). C, D. Female paratype from Mt. Fisher, 7 km southwest of Millaa Millaa, habitus, and head (frontal), respectively.

surface of the femur. Spines on the ventral margins of the femora are as follows: Front femur, anterior margin, 0-1, hind margin, 0; Mid femur, anterior, 0-4, posterior, 0-2; Hind femur, anterior 0-3, posterior, 0-2.

Colouration: Light brown. Head with a dark brown spot on the frons and between the eyes, the latter divided by the Y-shaped suture. Dorsal surface brown, with lighter broad lateral zones. Pronotum with dark specks, each spot indicating the site of a minute seta. Abdominal sternites light brown, speckled with small brown spots. Cerci dark brown with yellow apices.

Measurements (mm). Body length, 14.6-17.0; pronotum length $\times$ width, 4.3-5.4 $\times$ 9.0-10.2; interocular distance, 0.8-0.9; length of first antennal segment, 0.9-1.0.

NYMPH: Both sexes resemble the adult female, but lack the minute dark granules on the front coxa, trochanter, and femur. Spines on the ventral margins of the femora are lacking.

ETYMOLOGY

The specific name refers to the median triangular lobe on the hind margin of the supraanal plate.

REMARKS

As in *mackerrasae*, the small number and size of the spines on the ventral margins of the femora, or their complete absence, makes it difficult to place the females and nymphs in *Neolaxta*. However, the shape of the supraanal plate (both sexes) is unique for the species and makes it easily identifiable.

Neolaxta sp. A.

MATERIAL EXAMINED

QUEENSLAND. ANIC: Bluff Ra. near Biggenden, foothills under leaf mould, 1♀ (possibly a nymph), 16.viii.1971, H. Frauca.

DESCRIPTION

FEMALE. Similar to *triangulifera*, but differs as follows: Supraanal plate shorter, the hind margin between the rounded posterior corners weakly

scalloped, lacking a distinct medial triangular lobe. Pro-, meso-, and metanotum with a longitudinal row of upright tubercles on each side of the midline; in addition, the pronotum has groups of tubercles on the outer borders of the cucullus. The tubercles along the hind margins of the abdominal tergites are upright and each segment has a median tubercle forming a longitudinal line that is a continuation of the medial double row of thoracic tubercles. The spines on the anteroventral margin of the front femur are only slightly more robust than the hairs on the mid and hind femora, and they are not characteristic for the genus. The ventral surface of the trochanter and femur of the front leg lack granules.

Colouration: The surface is covered with debris which has to be removed to reveal color and texture. Light brown. Head with frons and vertex dark brown. Pronotum with 4 dark spots on the lateral parts of the hood where groups of tubercles are located. A dark brown median line, delineated by upright tubercles, starts at about the center of the pronotum and continues the length of the meso- and metanotum.

Measurements (mm): Body length, 13.2; pronotum length $\times$ width, 4.5 $\times$ 8.0; interocular distance, 1.0; length of first antennal segment, 0.8.

REMARKS

Although this specimen appears to be distinct from the more northern *triangulifera*, I feel it should not be named until the male is found.

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